EIC Resource Review Board (RRB)
Meeting Minutes of the 5th EIC RRB Meeting
June 5-6, 2025
Academy of Sciences of the Czech Republic
[Website](#)/[Indico](#)

Day 1 – Thursday June 5, 2025

Welcomes were given by Professor Vaclav Cuba (Dean of Faculty of Nuclear Sciences and Physical Engineering of Czech Technical University in Prague), Dr. Ondrej Svoboda (Director of Nuclear Physics Institute of Czech Academy of Sciences) and Dr. Marek Vysinka (Host/Ministry of Education, Youth and Sports of Czech Republic). Additional welcome given by David Dean on behalf of BNL & JLAB.

November 2024 Meeting Minutes were unanimously approved.

Frank Sabatie was introduced as the newly appointed international co-chair. He will succeed Diego Bettoni. The change was in accordance to by-laws. The international co-chair is designated by invitation from the host labs of the projects.

JoAnne Hewett, BNL Laboratory Director, emphasized the importance of the FY26 President's Budget Request explicitly stating "continued support" for the EIC project.

The goals and topics for the meeting were discussed, including the RRB's important role in the planning and execution of the EIC project. The funding agencies must be kept fully informed and engaged on the status of the collaboration, integration of groups, and in-kind scope.

Report from the Project Director – Jim Yeck

- Project delivery strategy has always been technically driven. It is now being reevaluated to adapt to the current funding realities.
- Question: While seeing the subprojects laid out in more detail, there is a split between the Detector and the IR, yet the interfaces between IR and Detector are important - reason for that?
  - The timeline of the IR is defined by the IR magnets, whereas the detector is further ahead.
  - The critical path runs through those IR magnets – this creates an interface between detector and IR that needs to be managed carefully.

- o The detector people are embedded in the machine-detector interfaces.
- Participants expressed eagerness to read the May 2025 Red Team Review report.
  - o ACTION-Jim Yeck will ask with Red Team if it can be shared.
- Request to elaborate lessons learned from the May 2025 Red Team Review on splitting projects.
  - o Concerns about how subprojects for LBNF/ Dune became quite independent of each other.
  - o It should be discussed how they handled project management and contingency management.
  - o It is clear that there are several differences and similarities between EIC and LBNF/Dune. The main difference is that the EIC is a fully integrated project/machine which makes managing interfaces extremely important.
  - o LBNF/Dune's advice was not to follow their example literally, but use their model to understand the need to go to construction.

Remarks by Host Agenda -DOE – Paul Mantica

- The EIC is an excellent example of the broad engagement of the international community. DOE is pleased to see this.
- The project is absolutely "central" to the Office of Nuclear Physics (ONP) and the Office of Science.
- It was positive to see EIC explicitly mentioned in the President's Budget FY26.
- RRB participants encouraged to approach their office to discuss any issues concerns.
- Having the engagement of the international community and stakeholders very early in the EIC ensures that everyone can take ownership in both the realization of the EIC facility and the scientific program.
- Project team has made significant process since the last RRB meeting.
- ONP will conduct a review of the Hadron Injector Complex and the Removals and Repurpose (R&R) Review of RHIC for EIC to better understand the interplay between project activities, off project dependencies, in-kind commitments, and how they are overall managed by BNL.
- All projects within the US are subject to an annual appropriations process. During this time, it is important for the Project Team to focus on the things that they can control. DOE is committed to working with the Project Team and collaborators to meet the project goals defined back in 2019.
- Question: What is the timeframe for the release of the report on facilities?

o It is an activity also being worked on during this transition period, but can't guarantee a timescale.

EIC Project Session

Status of EIC International Partnerships & Agreements – Luisella Lari and Paolo Berrutti

- Details provided on the status, processes and documentation (iCRADAs) for in-kind contributions.
- Question: Are iCRADAs and PPDs developed in parallel or iCRADA first then PPD?
  - o It is overlapping – today we are more concentrated on iCRADAs because it is where the high-level scope is defined.
  - o Once the iCRADA is drafted, it is time to start the PPD.
- Clarification requested on if "multi-signature" means between US reps?
  - o Yes, correct.
- Timeline for iCRADAs
  - o In US, typically 4 months to obtain BNL and JLAB signatures. Then it depends on each country, but can be done in parallel.
  - o iCRADAs are still viewed by multiple levels in DOE. The template approval process is intended to give a preview, but final approval is an independent process.
  - o Template for iCRADAs has been officially approved by DOE and uploaded to the RRB Indico.
- US cannot accept a "gift." I.e., one institution cannot give something without the other giving something. All parties must contribute to the common good.

EIC Project Detector Overview – Elke Aschenauer and Rolf Ent

- Details provided on the status of the Detector and planning for its realization leading to the early science. Excellent progress on each of the components. Very close to realization of 30% in-kind contributions. Summarized the talk by covering the strengths and weaknesses.
- Question: How does the Project envision managing tariffs on steel?
  - o We have the Buy America Act – 60% of the steel must be sourced in the US (this was already before change in new administration). Current cost estimates have considered this. Tariffs will also be included in the Risk Registry and globally managed.

- o In general, please get in touch with us before shipping as we need to be proactive with exemptions.
- A need was expressed for more specifics on what the early science program will look like. Given the project delays, the science narrative needs to be reinforced. One of goals of the ePIC collaboration is to turn out a white paper by the middle of 2026 to showcase the impactful science results each year before the June 2026 Independent Project Review.

ePIC session

Report from the ePIC Collaboration Spokesperson – John Lajoie

- Report discussed the overall ePIC status and evolution and how this has synergy with the project evolution and needs for a successful CD2/3.
- Question: Is the size of collaboration growing and is it large enough?
    - o The collaboration is never large enough – we are more than 2x the size of the ALICE collaboration at similar stage. Engagement / ramp up is important.
    - o The collaboration labor statements in regard to FTEs will be further reviewed in 2026.
- Question: What is the timing of pre-Technical Design Report (pre-TDR) versus the Early Science White Paper?
    - o The pre-TDR is planned for late 2025 and the Early Science White Paper is planned for early 2026.

Report from ePIC Technical Director - Silvia Dalla Torre

- ePIC fully utilizing the proximity to the Project and the Collaboration. More than 175 collaborators – particularly early career scientists – working with test beams, simulations and physics studies, prototyping continues for other detector system and test beam, experts with appropriate expertise available.

Report from ePIC Computing Coordinator - Markus Diefenthaler

- Computing Testbed includes: computer-detector integration, streaming computing model test, testbed launched, EICO (EIC international Computing Organization) formed. Outreach and community building: webpage for new collaborators, tutorial sessions, community building; Priorities for 2025.
- Question: Where would GPUs be used in ePIC and what is the status of the efforts?
    - o Our software stack supports GPUs. They are part of the heterogenous computing framework and will likely also address AI needs. This year, we started to look into the needs and projections for high performance

computing (HPC). Our goal is to get a better understanding on how they will be able to assist us with our AI needs.

Computing and Software Session

International Computing Model and Governance - Amber Boehnlein and Alexei Klimentov

- The EIC International Computing Organization (EICO) has been defined. The charter establishes the EIC Computing Council and has been drafted. The EIC Computing Council follows the model of the RRB with one co-chair of the host labs and one from the international overview board. There remains a need to establish ownership of the operating procedures.
- The RRB is responsible for:
  - Approving the EICO charter. The plan is to present draft for comments to the EICO in June 2025 and finalize in Fall 2025 for an approval at the November 2025 RRB meeting.
  - Annual approval of Computer Resource Levels.
  - EICO Working Group's goal is to draft the EICO Cooperation Agreement by Fall 2026.
  - An appropriate working group will draft major procedural issues.
- Documents to be prepared by the EICO working group and ECSJI after the EICO charter is approved by the RRB:
  - Cooperation Agreement Template
  - Echelon 1 and Echelon 2 Requirements
  - EICO OB and MB composition and membership
- The core computing environment that delivers data is part of the EIC Scientific User Facility (SUF). The Office of Nuclear Physics is supports the SUF in making basic resources available to researchers.
- As part of the RRB, the DOE would work with the EICO and would have strong input on how the computing is run. Other agencies will have previews of the computing progress and needs before the Fall RRB meeting.

Common Funds and Global Strategy Session

Common Funds Proposal - WG presentation – Abhay Deshpande, Rolf Ent, Paolo Giubellino, John Lajoie

- Changes from the last RRB Meeting include:
  - Adapted the model for common funds to be more US based than CERN based.
    - Category A- US DOE Scientific User Facilities cannot charge a user fee. DOE is responsible for operating it.
  - Added section on assumptions for a DOE Office of Science User Facility.
  - Folded in implications on cost categories and no rebates/joining fees.
    - Neither 'rebates' nor 'joining fees' are countenanced for the US-EIC model.
  - Ensured computing was mentioned in governance.
  - Folded in comments provided at the 4th RRB meeting on the "M&O Process."
- Cost Categories
  - Category A – DOE is responsible for much of this. This category then concerns mainly some specialized test and diagnostic equipment for jointly-funded sub-detectors, and extraordinary computing services and operations common to the whole experiment (e.g. distributed computing data transfer and specialized software licenses). Estimates have a 30% uncertainty. $3-6M range in FY25$.
  - Category B – Provided by collaborations and other funding agencies in support of specialized expertise on detectors they provide. It is assumed to start in FY32/3 and with a 50% uncertainty in present estimates.
  - Category C – Collaboration support including computing. A FY29 start is assumed with sub-detectors to start coming to BNL. Estimates have 30% uncertainty. $1.6-3M range in FY25.
  - Category D – DOE responsible for all.
- The subgroup was congratulated on the great start for their work.
- Questions and comments to prepare for upcoming RRBs:
  - How to transfer money?
  - Size of the contribution: Should be small enough to not discourage increase of collaboration and commitment, but not too small that large number of participants could be enrolled without agreeing on contributions. A small but

non-negligible common fund contribution per participants of outreach would serve as that counter factor against the size of the engagement.
  - o The importance of the Scrutiny Group was emphasized.
  - o Can funding for outreach efforts be started early before the common funds are in place? Outreach funding at the levels of $10k – could be supported by BNL management.
  - o Outreach efforts across the countries could be coordinated and materials could be funded locally.
  - o The M&O process timeline needs to be coordinated with the RRB meetings schedule.

Global Strategy Proposal - WG presentation - Jana Bielcikova

- Goal is to expand the EIC experimental community.
- EICUG and ePIC Outreach Group working group established with members from the UK, Europe Asia, and US.
- First Photo Contest took place during the January 2025 ePIC Collaboration Meeting. Included a poster contest on EIC science and the ePIC detector for high school students, nonexpert scientists in our field, and for non-accelerators scientists.
- Plans for student engagement through summer and QCD classes.
- Exchange program being formed with DOE and INFN to host summer students for two months of epic related activities.
- Need to determine how to support travel for high school students to attend lectures.

Updates were given by the following funding agencies representatives and/or PIs:

- Diego Bettoni, INFN/Italy
- Nigel Smith, TRIUMF/Canada
- Jaeyoung Kim, Korean Basic Science Institute/South Korea
- Paul Mantica, DOE/ United States
- Taku Gunji, Center for Nuclear Study, the University of Tokyo/Japan
- Chia Ming Kuo, National Central University/ Taiwan
- Helen Beadman, UKRI-STFC/UK
- Marcella Grasso, CNRS/IN2P3/France
- Franck Sabatie, CEA Saclay/France
- Marek Vyšinka, Ministry of Education, Youth, and Sports/Czech Republic

- Jarolslav Bielčík, Czech Technical University in Prague/Czech Republic

Preparation for the Next RRB Meeting

Future Meeting Topics & Action Items

- Approve the Charter for the EIC International Computing Organization (EICO)
    - Collect comments from RRB by August 31, 2025.
    - Alexei will share charter to post on the Indico
- Can the RRB help with any of the iCRADA discussions? With CERN? Logistics of the Common Funds (in 2027)?
- Composition of Scrutiny Group (in 2027).

Future RRB Meeting, Dates and Venues

- The 6th RRB Meeting will be held on November 4-5, 2025 at BNL.
- Proposal from Japan to host the **7th RRB Meeting** at RIKEN or the University of Tokyo as it is a critical year for EIC funding in Japan. Tentatively looking at the first week of June 2026.
- Beyond 2026, there is interest from Taiwan and France to host.

Minutes reported by Anna Mendez, amendez@bnl.gov and Alyssa Petrone,

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